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ABSTRACT

Aptitude for academic achievement is the major intended selection criteria for college enrollment in Illincis. The differentiated system of higher education attempts to match student ability, needs and aspirations to broadly defined institutional missions, and there is a broad spectrum of diversity within that system. Aspirations for achievement, high school grade averages, and ACT test scores of entering college freshmen increase with the level of institution enrolling those students. Without a tremendous increase of resources and without a major upheaval of the existing system it appears impossible to meet the public's expectations for protection of academic quality and for expansion of equality of educational opportunity and access to higher education. In the short run, expansion of opportunity and better education can perhaps be achieved more efficiently by improving the quality of educational attainment in the primary and secondary schools, particularly schools that serve the deprived. In the long run, equality of educational opportunity and access to higher education depend on sweeping social reform. (Author/HS)

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III

ABILITY MEASURES
THE MATCHING OF STUDENT CHARACTERISTICS AND OBJECTIVES TO INSTITUTIONAL MISSION

by

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III

ABILITY MEASURES - THE MATCHING OF STUDENT CHARACTERISTICS AND OBJECTIVES TO INSTITUTIONAL MISSION

The best way to predict college success is to consider high school grades and scores on tests of academic ability. There are data which suggest that through this mechanism higher education has developed a fairly efficient screening process which tends to match the academic ability of high school graduates to the institutions which can best further develop those abilities. This is important, because a developing body of knowledge indicates that students with equal initial ability vary on the amount of improvement they show on educational development tests given after a period of college attendance. Characteristics and background factors that the student brings with him into the college situation determine to a large extent which college experience would be most effective in bringing about desired levels of achievement through college attendance.

For example, the American College Testing Program has recently performed a study[1] indicating that there are institutional differences which provide statistically significant gains on ACT[2] retests after one or two years of college. Colleges enrolling students with the highest initial mean ACT scores exhibited more gain on retests after some college attendance than did colleges enrolling students with lower initial mean ACT scores (See Table 1).

Although this study was limited and does not permit generalizations to the entire student body of any state, it represents similar conclusions which can be de-

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[1] Lenning, Oscar T. "An Exploratory Study of Factors Differentiating Freshmen Educational Growth," March 1970.

[2] The American College Tests emphasize such skills as the ability to handle algebraic manipulations, to analyze and solve problems, to make inferences, to think critically, to use language effectively, to read with comprehension, to recognize writers' styles and biases, and to apply reading to new situations. How the student can apply his knowledge is emphasized, rather than the knowledge of detailed subject matter.

TABLE 1

OBSERVED CHANGE IN ACT RETEST SCORES AT FOUR DIFFERENT INSTITUTIONS

Type of Institution	Mean ACT Scores	Percent of Sample Who Increased Scores After 1-2 Years of College	Percent of Sample Who Decreased Scores After 1-2 Years of College
State University	22.1	74	16
State Teachers College	19.6	70	19
State College	19.3	65	23
State Junior College	18.2	59	24

rived from other studies. There is wide variation among students on the amount of educational growth displayed in retest experiments, but there is a relationship between positive achievement and type of institution. "Colleges whose students show the highest significant average gains in retest experiments enroll students with the highest initial average test scores. Such institutional differences may be the result of student input characteristics or of campus atmosphere and instructional characteristics, or of both."[3]

An examination of some of the characteristics of the Nation's fall 1970 entering freshman class[4] describes the student bodies enrolled in each major sector of higher education over the past several years (Table 2). A check of the sample of 23 Illinois institutions participating in this study indicate that the Illinois institutions fit the national description.

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[3] Lenning, O. T., Munday, L. A., and Maxey, E. J. "Student Educational Growth During the First Two Years of College," February 1968.

[4] "National Norms for Entering College Freshmen - 1970," The American Council on Education.

TABLE 2

SOME CHARACTERISTICS OF THE FALL 1970 ENTERING FRESHMEN
BY TYPE OF INSTITUTION[a]

Fall 1970 Class	All Institutions	All 2-Year Colleges	All 4-Year Colleges	All Universities	2-Year Colleges		4-Year Colleges		Universities	
					Public	Private	Public	Private	Public	Private
Mean ACT Composite Test Score[b]	20.1	17.8	20.0	22.2	NA		NA		NA	
Median High School Average Grade[c]	2.88	2.57	3.00	3.20	2.58	2.53	2.94	3.13	3.19	3.21
Median Parental Income	$11,770	$10,215	$11,970	$13,860	$10,000	$11,790	$11,155	$13,960	$13,590	$14,580
Father's Education										
Grammer School or Less	10.7	16.9	8.8	5.1	18.6	10.4	10.4	6.0	5.4	4.4
Some High School	16.0	21.2	15.0	10.2	22.6	15.9	18.3	10.9	10.6	9.5
High School Degree	29.1	30.9	29.6	25.7	30.9	31.1	33.3	21.8	26.3	24.2
Some College	17.0	15.1	17.6	18.7	14.9	15.9	17.4	16.3	19.2	17.5
College Degree	17.7	11.5	18.2	25.7	9.7	18.4	14.3	24.8	25.2	26.8
Postgraduate Degree	9.5	4.5	10.7	14.6	3.4	8.3	6.2	20.1	13.3	17.6
Highest Degree Planned										
None	2.1	4.5	1.0	.7	5.2	1.7	1.0	1.0	.8	.5
Associate (or Equivalent)	7.6	18.5	1.6	1.8	19.4	15.2	1.7	1.7	2.2	1.1
Bachelors Degree (B.S., B.A.)	38.3	37.8	40.4	35.6	36.7	42.0	44.7	34.5	37.8	30.5
Masters Degree (M.A., M.S.)	31.2	23.7	36.6	33.0	22.9	27.0	37.4	33.9	32.0	35.2
Ph.D. or Ed.D.	9.7	5.1	11.2	13.6	5.1	5.1	8.9	14.3	12.7	15.8
M.D., D.D.S., or D.V.M.	4.6	2.7	4.0	8.4	2.7	2.5	2.7	6.8	8.2	9.0
LL.B. or J.D.	3.5	1.9	3.5	5.7	1.7	2.4	2.4	5.8	5.3	6.7
B.D.	.4	.4	.5	.3	.2	.9	.2	.6	.2	.3
Other	2.6	5.5	1.2	.8	6.0	3.4	1.1	1.2	.8	.8

(a) Data derived from "College Student Profiles, American College Testing Program," and from "National Norms for Entering College Freshmen - Fall 1970," American Council on Education.

(b) ACT scale = 1 to 36

(c) High School scale = 4.00

High school grades and the ACT battery of examinations are measures of academic ability, of the students aptitude for mastering college work. These measures are distributed over a range of values for any particular student body, but Table 2 describes the fact that median[5] high school grade averages and mean[6] ACT scores of students increase with the level of institution.

The median parental income of students increases with the level of institution. Within each of the three levels of institutions, parental income of students enrolled in private institutions is significantly higher than parental income of students enrolled in public institutions. And the distribution of parental educational attainment (which can be correlated with income) displays the same pattern.

Student aspirations for the educational attainment sought from college indicate that student self-selection and institutional selection are geared to the level of institution. Table 3 presents similar information obtained from midwest college students enrolled during the middle of the 1960's.

What has evolved in this Nation and in the State of Illinois is a general classification of institutions within which individual institutions have developed their own particular identities. And each institution within a general classification attempts to match its identity to a particular clientele. This "system" provides a spectrum of possibilities geared to academic ability. Within the existing "system" individual institutions serve a diversity of student goals and objectives, but generally they attempt to match the student's academic ability to a broadly defined institutional mission.

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[5] Fifty per cent of a group is above and fifty per cent fall below the group's median score on a given test.

[6] The mean is the weighted average score for a group.

TABLE 3

ACADEMIC ASPIRATIONS AND ABILITY OF MIDWEST COLLEGE FRESHMEN
ACADEMIC YEARS 1962-63 THROUGH 1964-65(d)

Level of Educational Attainment Sought By Students Enrolled	Classification of Institution			
	2-Year Institutions	Bachelor's Level 4-Year Institutions	Master's and/or Professional Degrees Granted	Ph.D. Granting
College Less than Bachelor's	29	12	13	8
Bachelor's or Equivalent	47	52	54	47
Higher than Bachelor's	19	33	31	42
Other	5	3	2	3
	100%	100%	100%	100%
Mean High School Grade Average	2.26	2.54	2.58	2.79
Mean ACT Test Score	19.1	21.0	21.0	23.1

(d) Data derived from "College Student Profile," American College Testing Program, 1966.

For example, Table 4 describes for a range of Illinois public institutions the percentage distribution of ACT scores for the 1970 entering freshman class. It shows that those institutions offering the most advanced levels of college study tend to enroll students with the highest promise of academic achievement. (An ACT score of 15 is roughly equivalent to an IQ of 100, the median IQ of the total population.)

The broad goals of higher education have been and continue to be "providing educational opportunity, varied instructional and institutional programs, freedom for students to select institutions on the basis of their interests and abilities,

TABLE 4

PERCENTAGE OF FRESHMEN STUDENTS IN TEST SCORE INTERVALS ON THE ACT COMPOSITE, 1970 (e)

ACT Score Interval (f)	Midwest Regional Norms (g)	Type of Institution				
		Senior Institutions			Junior Colleges	
		Ph.D. Granting	Master's Level Some Ph.D. Programs	Bachelor's Level Some Master's Programs	Feeders (h)	State Average
26-36	24	63	20	13	6	5
21-25	40	31	52	35	26	18
16-20	27	5	21	33	42	40
11-15	9	1	7	19	26	37

(e) Data derived from unpublished research, University of Illinois and Southern Illinois University.
(f) ACT data for freshmen students is illustrative of academic potential. It ranges from a high of 36 to a low of 1.
(g) Includes enrollees in all types of institutions.
(h) Deliver a significant proportion of transfers to senior institutions.

academic freedom, efficiency and economy of operation, balanced institutional and state budgets, equity, and the advancement of society."[7] These aims are not always mutually consistent. It is not clear, for instance, that American higher education has the necessary resources to meet at the same time the public's expectations for protection of academic quality and for expansion of equality of educational opportunity.

Of those students who currently enroll in our colleges and universities, ability plays a larger intended role than socio-economic status. Existing socio-economic

[7] Bowen, Howard R. "Finance and the Aims of American Higher Education," 1970.

differences between those students enrolled in higher education and those who are not reflect the primary and secondary school experience, and this in turn reflects academic achievement as well as the distribution of wealth, class, and values in our society. Family income level is just one of the socio-economic factors that determine a young person's access to higher education. Equally important are the educational level attained by the head of the household, his or her occupational status, and the size of the family from which the young person comes. Cultural and environmental conditions are closely related to a family's educational and occupational status.

> Coming of age in America can be a race for the top. It is seldom a sprint, however, in which victory goes to the naturally gifted or enthusiastic. It is a marathon, in which victory goes to those who train the longest and care the most. And it is here that the upper-middle class child has the crucial advantages. He is trained for the contest from birth, and more often than not he is convinced that losing it will mean metaphorical if not literal death.
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> . . . So long as the distribution of power and privilege among adults remains radically unequal, and so long as some children are raised by adults at the bottom while others are raised by adults at the top, the children will more often than not turn out unequal . . . children raised in different circumstances necessarily have different hopes, expectations, and compulsions. We suspect that these differences account for more of the class variation in college chances than all other differences combined.
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> . . . What America most needs is not more mobility but more equality. So long as American life is premised on dramatic inequalities of wealth and power, no system for allocating social roles will be very satisfactory. . . .[8]

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[8] Jencks, Christopher, and Riesman, David. "The Academic Revolution," 1968.

The severest bottleneck in the effort to expand educational opportunity occurs in the last years of high school. It is clear that the most comprehensive efforts by colleges and universities will not be adequate if the nature of high school graduation does not change. The preparation of a child for successful competition in the academic world begins at birth, and continues throughout the pre-college years. An analysis of the role and the responsibility of higher education in providing equal opportunity cannot ignore those years, yet brief references to the complex issues they raise note the dangers of over-simplification.

To provide a context for any discussion of college preparatory curriculum and of class-related barriers to college access, three points must be made:

1. Some degree of "inequality" must be accepted as inevitable. There is a limit to the fraction of high school graduates who can complete post-secondary education. Studies indicate that while over one-half of the Nation's high school graduates now take one or more years of college work, only about 30 per cent of high school graduates have ever been able to complete a college career.[9]
2. Without a basic priority and a massive effort to improve the effectiveness of our pre-elementary, elementary, and secondary educational programs, equalizing opportunity for higher education will be impossible. This effort involves the re-allocation and strengthening of resources, the training of teachers, the elimination of racial and socio-economic segregation in the primary and secondary schools, and the development of children's verbal

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[9] Astin, Alexander W. "College Dropouts: A National Profile." Bureau of the Census, P-20 reports.

Graziano, A. F. Long Range Planning, University of Illinois, Vol. 2, No. 4, May 1971.

and mathematical skills at early ages.

3. If we accept the present values and the criteria of the higher education system, extra-curricular factors affecting elementary and secondary educational preparation of the under-represented groups must be addressed. Jencks and Riesman have described the extent to which the environment of an upper-middle class home is conducive to the reinforcement of meritocratic values.

> Urban middle-class life in general and professional work in particular seem to nourish potentially academic skills and interests in parents, while lower-class life does the opposite. Parents who have such skills and interests pass them along to their children in a multitude of ways, from reading storybooks and playing complex verbal games to including their children in adult conversations. They also make an effort to put their children into stimulating schools. They often move to suburbs with presumably superior schools or send their children to private schools. Parents in the lower social strata, on the other hand, while often as outwardly anxious as upper-middle class parents to see their children do well in school, seldom have either the time, the money, or the personal skills to help their children in comparable ways. Most children born in poor homes grow up with limited vocabularies, limited contact with adults, and limited contact with intellectually stimulating teachers or classmates. They have no privacy, no quiet, no possibility of concentrating on any problem without interruption, be it homework or building blocks. As time goes on they fall increasingly behind their upper-middle class fellows, suffering intellectual damage which is both cumulative and progressively harder to remedy.[10]

This is not an absolute evaluation of family life. It is a measurement of the degree to which early preparation for successful academic competition is class-related.

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10 Jencks, Christopher, and Riesman, David, "The Academic Revolution," New York, 1968.

Conclusions

1. Aptitude for academic achievement is the major intended selection criteria for college enrollment. Socio-economic stratification is an unintended but explainable by-product.

2. The differentiated "system" of higher education attempts to match student ability, needs and aspirations to broadly defined institutional missions, and there is a broad spectrum of diversity within that system. Aspirations for achievement, high school grade averages, and ACT test scores of entering college freshmen increase with the level of institution enrolling those students.

3. Without a tremendous increase of resources and without a major upheaval of the existing system it appears impossible to meet the public's expectations for protection of academic quality and for expansion of equality of educational opportunity and access to higher education. In the short run, expansion of opportunity and better education can perhaps be achieved more efficiently by improving the quality of educational attainment in the primary and secondary schools, particularly schools which serve the deprived. In the long run, equality of educational opportunity and access to higher education depend on sweeping social reform.